

Design Technology: Building Stable Structures

Learning objective: To evaluate and describe the structural stability of a design using technical vocabulary and reasoning.

Max the monkey has been busy building a new viewing platform for the BookFlik forest. Use this writing scaffold to explain how you have designed your own stable structure. Use the word bank to help you describe the materials and techniques you used to ensure your structure is fit for purpose.

My chosen structure is a viewing tower designed to support the weight of a heavy school bag while remaining perfectly balanced.

Word bank: structural integrity · triangulation · reinforcement · load-bearing · consequently · furthermore · in addition · base · tensile strength · vertical supports

1. The Design Brief: Briefly describe the purpose of your structure and explain the specific requirements it must meet. Start by writing: 'The primary purpose of my structure is to...' (2 marks)

2. Materials and Properties: Explain why you chose your specific materials. Consider their strength and durability. Start by writing: 'I decided to use [material] because it provides...' (2 marks)

3. Structural Techniques: Describe how you incorporated stability. Did you use triangulation or a wide base? Start by writing: 'To ensure my structure remains stable, I incorporated...' (3 marks)

4. Testing and Evaluation: If you were to build this again, what improvements would you make to the design? Start by writing: 'Upon reflection, I believe the stability could be improved by...' (2 marks)

5. Cost Analysis: If the materials cost £1.50 per unit and you used 8 units, calculate the total cost. Start by writing: 'The total cost of my materials is £...' (2 marks)

Extension challenge: Imagine your structure needs to withstand a strong storm. Write a short paragraph explaining how you could modify your design to make it more aerodynamic and wind-resistant.